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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/565,679 | 01/24/2006 | Narutoshi Fukuzawa | 284873US2PCT | 2658 |
| 22850 7590 05/16/2008 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | EXAMINER HIGGINS, GERARD T | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1794 | |
| | | | NOTIFICATION DATE | DELIVERY MODE |
| | | | 05/16/2008 | ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| Office Action Summary | Application No. 10/565,679 | Applicant(s) FUKUZAWA ET AL. | |
| | Examiner GERARD T. HIGGINS | Art Unit 1794 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 8-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☒ Claim(s) 6 and 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>04/20/2006, 05/03/2006, 02/05/2007, and 11/29/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-7 in the reply filed on 03/25/2008 is acknowledged.
2. Claims 8-11 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 03/25/2008.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

4. Claims 6 and 7 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 2-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 2, it is unclear what the phrase "on a light entrance face side of the substrate when viewed from the noble metal nitride layer" intends to claim; specifically, "when viewed from the noble metal nitride layer" is unclear. This indefinite language ("when viewed from") needs to be rectified in claims 3, 4, and 6 as well. For purposes of examination, the Examiner will treat the claims as if applicants are trying to claim the relative arrangement of layers in Figure 1(b).

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Masuda (4,919,988).

With regard to claims 1 and 5, Masuda discloses an optical recording medium which comprises a substrate **11** and a recording zone **16** provided on said substrate (col. 3, lines 20-39), which may be comprised of the materials at col. 5, lines 18-30. Included *inter alia* are platinum, gold, and copper, which may be in the form of oxides, sulfides, carbides, or nitrides. The disk is recorded using heat mode or ablation methods.

9. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Shigematsu et al. (5,034,255).

With regard to claims 1 and 5, Shigematsu et al. disclose an optical recording medium with a substrate **11** and a recording layer **12** (col. 3, lines 30-34). The recording layer is comprised of *inter alia* palladium and platinum in the form of nitrides (col. 4, lines 5-29).

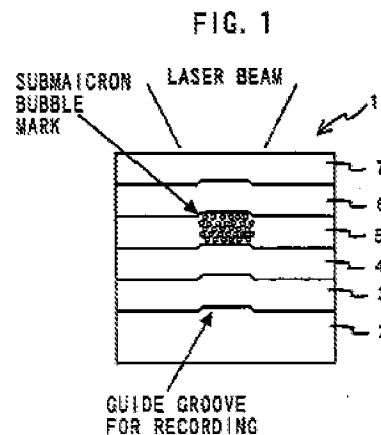
10. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Kikukawa et al. (US 2002/0191527).

With regard to claims 1 and 5, Kikukawa et al. disclose an optical recording medium that is comprised of a substrate **2** and a layer **10** [0057]. The layer **10** comprises *inter alia* platinum, palladium, copper, gold, and silver [0059], which may be in the form of nitrides or oxides [0072]. The purpose of this layer is to afford super-resolution readout of an underlying recording layer, which may be phase-change in nature [0054] and [0055].

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11. Claims 1, 2, and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Hosoda et al. (US 2005/0233247).

Hosoda et al. teach the device of Figure 1.



With regard to claims 1 and 5, the device is comprised of a substrate **2** and a noble metal nitride layer **5** [0027]. The nitride layer **5** is comprised of *inter alia* platinum, gold, silver, and copper [0028], which may be in the form of nitrides or oxides [0029]. The recording layer also comprises a thermal absorber [0032]. Recording is done by decomposing the nitrides, which deform the layer and change the optical characteristics.

With regard to claim 2, the noble metal nitride layer is sandwiched by first **6** and second **4** dielectric layers.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuji et al. ("A Near-Field Recording and Readout Technology using a Metallic Probe in an Optical Disk") in view of Kikukawa et al. (US 2002/0191527).

Fuji et al. teach the device of Figure 1.

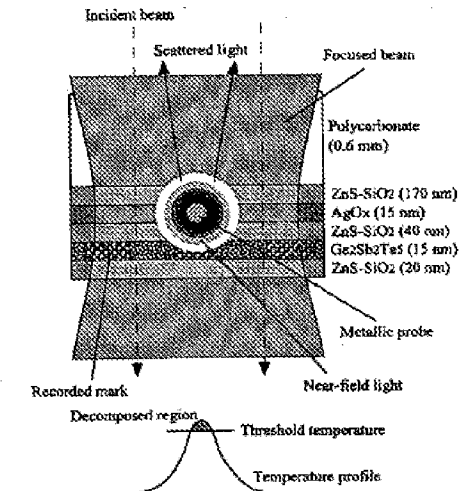


Fig. 1. Cross section of a new disk. Silver oxide film is used as the readout layer, instead of an Sb film.

With regard to claims 2 and 3, the device is made for super-resolution recording comprises three dielectric layers, wherein the first and second are sandwiching a noble metal oxide layer and the second and third are sandwiching the light absorption layer (phase-change layer); however, Fuji et al. fail to teach a noble metal layer that is comprised of platinum nitride on a substrate.

Since Kikukawa et al. and Fuji et al. are both drawn to super-resolution recording discs, it would have been obvious to one having ordinary skill in the art at the time the

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invention was made to substitute the silver oxide of Fuji et al. with the platinum nitride layer of Kikukawa et al. Kikukawa et al. disclose at [0072] that the functional layer may be comprised of oxide and nitrides of the previously mentioned metals, which included silver and platinum. This shows that the silver oxide layer of Fuji et al. may be substituted by an equivalent layer of platinum nitride. Another motivation for doing so would be to fine tune the super-resolution ability dependent upon the light-absorption layer as stated in Kikukawa et al. [0055].

With regard to claim 4, Kikukawa et al. state that it is known to use a reflective layer on recording media [0054].

It would have been obvious to one having ordinary skill in the art of optical recording media to use a reflective layer in the recording stratum of Kikukawa et al. in view of Fuji et al. The motivation for doing so would be to reflect back the incident light of the laser in order to increase the absorption of light by the light-absorbing layer.

14. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoda et al. (US 2005/0233247), as applied to claim 2 in view of Fuji et al. ("A Near-Field Recording and Readout Technology using a Metallic Probe in an Optical Disk").

Hosoda et al. teach all of the limitations of applicants' claim 2 in section 11 above. They also teach thermal absorbers contained in the noble metal nitride layer and the ability to make the recording layer into a multilayered arrangement [0066]; however, they fail to teach a light absorption layer that is separate from the metal nitride

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layer and sandwiched by the second and third dielectric layers, as in the arrangement of claim 3.

Fuji et al. teach the layer arrangement of Figure 1, please see section 13 above. In their arrangement the light absorption layer is separate from the layer of a noble metal oxide.

Since Fuji et al. and Hosoda et al. are both drawn to optical recording media, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the layer arrangement of Fuji et al. This would comprise the disclosure in Hosoda et al. that the recording layer may be comprised of a multilayer arrangement; specifically, it would involve removing the thermal absorbers (phase-change materials) and forming a distinct layer with the absorbers. The motivation for doing so would be to control the amount of heat energy that gets imparted to the nitride compounds for the purposes of decomposition; further, it would have been obvious to one having ordinary skill in the art to add a dielectric layer in between the thermal absorber layer and the noble metal nitride layer, as seen in Fuji et al. for those same purposes (i.e. to control heat transfer rate).

With regard to claim 4, Hosoda et al. teach a reflecting layer **3** in the same position as provided in applicants' claim 4.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art not used concerns an optical recording medium that uses either silver oxide or iron nitride in the recording layer. The recording is affected by decomposition of the oxide or nitride into gas bubbles of oxygen or nitrogen.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GERARD T. HIGGINS whose telephone number is (571)270-3467. The examiner can normally be reached on M-F 7:30am-5pm est. (1st Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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